ACC.14
TCT@ACC-i2 | innovation in intervention

A1718
JACC April 1, 2014
Volume 63, Issue 12

TCT@ACC-i2: The Interventional Learning Pathway

VASCULAR FLOW RESERVE IMMEDIATELY AFTER INFRAPOPLITEAL INTERVENTION AS A PREDICTOR OF WOUND HEALING IN PATIENTS WITH FOOT TISSUE LOSS

Oral Contributions
Room 206
Sunday, March 30, 2014, 8:30 a.m.-8:40 a.m.

Session Title: Vascular Disease and Intervention
Abstract Category: 37. TCT@ACC-i2: Carotid and Endovascular Intervention
Presentation Number: 2907-05

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Background: The impaired coronary blood flow reserve after coronary intervention has been related to microvascular damage leading to increased morbidity and mortality. However, it is not clear whether it applied to patients with critical limb ischemia (CLI) undergoing endovascular treatment (EVT) for isolated infrapopliteal lesions.

Methods: A consecutive series of 28 limbs of CLI patients presenting with ischemic tissue loss undergoing EVT for isolated infrapopliteal lesions were enrolled. All lesions were treated by conventional balloon angioplasty alone. After the procedure, a pressure/temperature sensor-tipped guidewire was positioned in the proximal popliteal artery. By using thermodilution technique, mean transit time (Tmn) of a thermodilution-curve was obtained after bolus injections of 3 mL saline at baseline and at intra-arterial papaverine induced maximum hyperemia (30mg). Vascular flow reserve (VFR) was calculated as resting Tmn divided by hyperemic Tmn. Wound healing success was defined when complete healing of initial wound was obtained within 3 months after EVT.

Results: VFR was successfully measured immediately after EVT in all patients without any complication. Wound healing success was achieved in 16 limbs after EVT (healing group) and not achieved in 12 (non-healing group). No significant differences existed in baseline lesion characteristics between two groups. Although there was no significant difference in pre-EVT VFR value between the non-healing and healing groups (3.7±1.7 versus 3.6±1.6), post-EVT VFR was significantly lower in the non-healing than in the healing groups (2.8±1.1 versus 4.2±2.0, $p<0.05$). A Receiver operating characteristic analysis identified post-EVT VFR >3.6 (sensitivity 68.8% and specificity 83.3%) as the best threshold value for wound healing success after EVT.

Conclusions: Post-procedural VFR is restricted in patients with poor wound healing due to the increase of resting blood flow. Post-EVT VFR >3.6 reliably identifies wound healing for CLI patients. This easily assessable VFR is useful in clinical risk stratification for patients with CLI immediately after EVT in the catheterization laboratory.